200 Area End State Work Shop
August 10-11, 2004

Central Plateau Uses & Activities (Exposure Scenario Development)

Question: Based on the possible post-cleanup land uses, the following end state related questions (primarily focused on the time frame of 50 years into the future and beyond) can be discussed:

- **What range of activities could workers and/or visitors be involved in within the core zone?**
- **Outside the core zone?**
- **Should other alternative activities (beyond those consistent with the assumed land uses) be considered for comparison or other purposes?**
- **Based on the desired land-use and exposure scenarios, what types of institutional controls are appropriate, and over what time frames?**

The following is the summary as developed by the entire group

Land Use and Timeline Considerations

- Active Remediation until about 2050
  - Waste management and facility cleanup
    - Tank waste vitrification
    - ERDF; US Ecology; Facilities/Tanks decommissioning
  - Should consider shrinking the Core Zone (CZ) especially into smaller sub-zones that would release areas such as between the 200-E and 200-W areas.
  - Need to better define area outside CZ – what's needed to supplement CZ as Buffer or for Institutional Controls (IC) enhancement
- Active Management of Engineering Controls (ECs) and ICs expected for 100 years thereafter – probably can control land uses
  - Institution(s)/handoffs must be determined
  - Tribes recognize need for Federal jurisdiction in CZ
- ICs will fail at undefined time beyond that
  - Any use possible (Same as 100 Area)

- Remedies should be sufficiently robust as to prevent intrusion by "realistic" future intruders (i.e., if Institutional Controls fail)

- The area Outside of the CZ should be used to establish a "buffer zone" around CZ. It is expected that this "buffer zone" will shrink and be eliminated over time.

- <u>Conflicting Input</u>
  - <u>Robust Remedies</u> Versus <u>Reversible Remedies</u>
  - Institutional Controls that <u>Prevent Access</u> Versus <u>Encourage Access</u>

Future Uses Enhance Institutional Controls

- CZ – industrial use
  - –ICs could be enabled/enhanced by encouraging the location of future industries with an interest in retaining knowledge of the residual materials that remain in the Core Zone.

- The CZ and area Outside the CZ possess attributes that could enhance the location of compatible businesses, such as:
  - –"Mecca" for Environmental Cleanup technology firms
  - –Remoteness (low light astronomy, bio-chemical research, etc.)
  - –Manhattan Project historical preservation
  - –Waste management
  - –National Monument support infrastructure
  - –Energy Production (Natural gas, nuclear, renewable…)
  - –Include full Tribal use ASAP

General Considerations

- Population will continue to increase – will increase value and demand for land for productive uses
- Configuration after facility and tank clean up, e.g., cap size/location affects CZ size
- Continue to characterize source and risk
- G/W should be cleaned for future resource
- Mineral exploration possible – drilling
- Buried waste a future resource?
- US Ecology closes - 2064
- 5 year reviews needed – don't preclude further clean up
- New technologies will come in 50 yr, 100 yr, etc., horizons

Central Plateau Uses & Activities – Exposure Scenario Development (Notes from 3 Breakout groups: Gariann's Group, Susan's Group, Maynard's Group)

	Now – 2050 (Active Cleanup Period)	2050-2150 (Active Institutional Control)	2150 and Beyond
Core Zone	• DOE has a continuing waste management mission. Also, U.S. Ecology. • Current actions (remedies) are not absolutely final. • Avoid "irreversible" actions during initial actions. • Consider separately isolating materials that could have future value (e.g., don't put uranium in ERDF). • Use for nuclear and power applications. Also other energy supply (e.g., natural gas). • Conduct CERCLA 5 year reviews to verify effectiveness of remedies. • Core Zone (CZ) should be defined by "active waste management" areas. • Consider major external decisions/actions with potential impact: removal of dams, WNP-2 operation, Black Rock Reservoir, etc. • Stabilization of waste. • Monitoring of waste sites. • Consider cleanup (removal) to reduce the "footprint" (all time periods). • Cleanup levels and the need for ICs are directly linked. • No Groundwater use, only active remediation and monitoring. • Consider shrinking the middle portion between East and West (ecological driver). • Consider future use implications of the end points for facilities and burial grounds. • Cleanup GW to enable MCLs outside of the CZ. • Historical preservation of the Manhattan Project facilities. • ICs need to be coordinated with engineering controls (ECs). • Create a "Mecca" for businesses with cleanup technologies. • Consider development of private businesses related to environmental cleanup. • Hanford's continuing missions include: US Ecology, submarine compartment disposal, PNNL/EMSL, long-term waste management, power and water assets. • Cleanup GW to enable future use. • Monument visitor center? Encourage access or limit access?	• Consider small or multiple core zones, e.g., East, West, ERDF, or release area between East and West. • Need to retain organized institutional control (IC) under federal control. • Consider risk (and consequence) to the likely population that could be exposed (also 2150+) • Consider a minimum threshold for radiological exposure (i.e., use scientifically based dose-risk assumptions). (Also 2150+) • There are two big "imponderables": o Technology (w hat is possible in the future?) o Institutions (how to maintain control?) • Don't preclude potential future beneficial actions. • Consider the potential for "mining" valuable materials in the future. (Also 2150+) • How can we make ICs real and viable? • How to link cleanup levels to hypothetical future industries? • Consider CZ future industrial requirements for water (no available clean water). • Consider finding uses to maintain a human presence within the CZ. • US Ecology lease ends in 2064. Will require some post-closure monitoring. • Consider industries that rely on isolation provided by the CZ and BZ. • Cleanup to enable non-waste management industries is probably not cost beneficial. • Future development on the Plateau will be dependent on water supply. • Can development around the CZ enable better long term IC? • Implement "hard" controls, not just deed restrictions or fences. Robust remedies that keep all except the most determined intruders. • Preference of industries with specific interest in retaining knowledge. • ICs should remain under federal or other government authority. • Use future access activities to fund continued ICs. • Value should be placed on preservation: monument, museums, library. • What is the institution that will maintain the integrity of ECs? • Maintain realistic information on residual risk.	• Consider the potential for future solutions to enable removal of end state inventories. • Given large uncertain in the future, remedies should enable unrestricted citizen use. •
Both	• The safety buffer zone around the WTP (and other operating facilities) will preclude some potential uses. • Consider the location of environmental technology industries on the Plateau. • Consider the potential for energy production (nuclear, other).	• Boundaries of the CZ and buffer zone (BZ) can/should shrink over time.	• Consider Tribal uses far in the future.
Outside Core Zone	• Consider "Manhattan Project" historical preservation. • Apply similar activities as are assumed in the 100 Area. • Consider expansion of the 100 Area toward the Plateau. • Consider the requirements for materials (e.g., barrier construction) to support CZ activities. • Ensure that potential uses are protective of CZ materials and activities (i.e., provide necessary "buffer"). • Consider restricted "beneficial" uses • 10 CFR 61 contemplates golf course on closed waste disposal facilities. • Identify the prohibited activities (e.g., agriculture) to define the necessary controls. • Develop risk-based (scientific) standards for cleanup (how much cleanup is required to enable agriculture?) • Tribal use and access (all time periods). • Consider impact of potential future uses on the viability of LIGO (< 50 years). • Restrict activities in the BZ (limit their duration). • No motorbikes where "spots" of contamination may still exist. • Retain a protective buffer zone. • Consider potential for land to revert back to tribal uses.	• Develop IC from "ring" of industry without incremental cleanup within the CZ. • Restrict agricultural use – consider impact from agricultural irrigation. • Low-light resource – amateur astronomy. • Consider use of groundwater, OR ICs to prevent use, OR treat GW? • Industry is more viable in the BZ where little or no cleanup is required. • Consider potential for future resource extraction (e.g., natural gas wells); or deployment of other renewable energy forms (e.g., wind). • IC: Retain conservation or preservation through Controls or merger with National Monument. • Use a BZ as an active IC to protect the CZ activities. • Could include potential recreational industries (e.g., hotels and other uses associated with the Monument). • Limit accessibility. • Retain a protective BZ, but shrink as appropriate • Expect growing population pressure for demand on land uses, including agriculture and residential. (and 2150+)	•